

Young Geun Kim

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🌐 <https://ygeunkim.github.io>

Education

Mar. 2019 – Feb. 2025 (Expected)	Ph.D. in Statistics , Sungkyunkwan University, Seoul. Advisor: <i>Changryong Baek</i> .
Mar. 2013 – Feb. 2019	B.Ec. in Statistics , Sungkyunkwan University, Seoul.

Research Interests

High-dimensional time series	High-dimensional time series analysis/forecasting.
Long-range dependence	Vector heterogeneous autoregressive (VHAR) model.
Bayesian econometrics	Bayesian vector autoregressive (BVAR) models.
Anomaly detection	Time series anomaly detection.

Research Publications

Journal Articles

- 1 **Y. G. Kim** and C. Baek, “Bayesian vector heterogeneous autoregressive modeling,” *Journal of Statistical Computation and Simulation*, vol. 94, no. 6, pp. 1139–1157, 2024. [DOI](#): 10.1080/00949655.2023.2281644.

Conference Proceedings

- 1 J.-H. Yun, J. Kim, W.-S. Hwang, **Y. G. Kim**, S. S. Woo, and B.-G. Min, “Residual size is not enough for anomaly detection: Improving detection performance using residual similarity in multivariate time series,” in *Proceedings of the 37th ACM/SIGAPP Symposium on Applied Computing*, ser. SAC '22, Virtual Event: Association for Computing Machinery, 2022, pp. 87–96, ISBN: 9781450387132. [DOI](#): 10.1145/3477314.3506990.
- 2 **Y. G. Kim**, J.-H. Yun, S. Han, H. C. Kim, and S. S. Woo, “Revitalizing self-organizing map: Anomaly detection using forecasting error patterns,” in *ICT Systems Security and Privacy Protection*, A. Jøsang, L. Fitcher, and J. Hagen, Eds., Cham: Springer International Publishing, Jun. 2021, pp. 382–397, ISBN: 978-3-030-78120-0. [DOI](#): 10.1007/978-3-030-78120-0_25.

Workshops & Posters

- 1 J. Cho, S. Tariq, S. Lee, **Y. G. Kim**, J.-H. Yun, J. Kim, H. C. Kim, and S. S. Woo, *Contextual anomaly detection by correlated probability distributions using kullback-leibler divergence*, 5th Workshop on Mining and Learning from Time Series, held in conjunction with KDD'19, Anchorage, Alaska, USA, Aug. 2019.

Korean Patents

- 1 S. S. Woo and **Y. G. Kim**, “Apparatus and method for detecting outliers in cyber-physical systems,” 1 026 080 180 000, Nov. 2023. [URL](https://doi.org/10.8080/1020220003261): <https://doi.org/10.8080/1020220003261>.

Presentations

- July 2024 **Bayesian Vector Heterogeneous Autoregressive Modeling** KSS Summer 2024
Department of Statistics at Sungkyunkwan University, Seoul, Korea
Student session.
- June 2021 **Revitalizing self-organizing map: Anomaly detection using forecasting error patterns**
IFIP SEC 2021
Department of Informatics at the University of Oslo, Oslo, Norway (Virtual)
Session 11: Machine Learning for Security

Research Experience

- Jun. 2019 – **Student Researcher** Time series Lab, Sungkyunkwan University, Seoul.
Researched Bayesian Vector Heterogeneous Autoregressive models.
- Apr. 2019 – Feb. 2020 **Part-time Student Researcher** Data-driven AI Security HCI Lab, Sungkyunkwan University, Suwon.
Participated in the **anomaly detection in Cyber-physical systems** project. Developed anomaly detection algorithm.

Teaching Assistanship

Off-campus

- Jul. 2024 – Sep. 2024 **Manufacturing solution division data boot-campus** Hyundai NGV.
Mentored Hyundai motor group employee's data boot-campus personal projects.
- Aug. 2023 and May. 2024 **Time Series Analysis and its Applications** The University of Samsung Electronics.
TA to time series analysis course - included in data science track - for Samsung Electronics employees. Held PyTorch Lab for time series forecasting.
- Nov. 2020 – Dec. 2020 **Data Analysis and Modeling 2** Statistics, SKK GSB AI MBA, Seoul.
TA to Time series analysis course for KB bank employees.

On-campus

- Mar. 2020 – Jun. 2020 **Recent Advances in Applied Statistics (STA5037)** Statistics, Sungkyunkwan University, Seoul.
Introduction to Time Series Analysis (STA3001) Statistics, Sungkyunkwan University, Seoul.
Insurance Statistics (STA3018) Statistics, Sungkyunkwan University, Seoul.
- Sep. 2019 – Dec. 2019 **Mathematics for Statistics (STA2008)** Statistics, Sungkyunkwan University, Seoul.
- May 2019 – Jun. 2019 **Matrix algebra for Statistics (STA2017)** Statistics, Sungkyunkwan University, Seoul.